

Amended Record of Decision  
(Enforcement Decision Document)  
Remedial Alternative Selection

SITE

Western Processing Company, Inc.  
Kent, Washington

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents describing the analysis of the cost and effectiveness of remedial alternatives for the Western Processing site.

- Record of Decision and Summary of Remedial Alternative Selection, dated September 25, 1985
- Consent Decree
- Summary of Remedial Alternative Selection at the Western Processing Company, Inc. site. Final Remedial Action.

DESCRIPTION OF SELECTED REMEDY

- Intensive soil and waste sampling on the Western Processing property (Area I) and intensive soil sampling off the property.
- Selective excavation in Area I of highly contaminated soils or non-soil materials ("specific wastes") before groundwater pumping begins, with additional excavation during and post-pumping if necessary. Off-site disposal of excavated specific wastes. Exhume all buried containerized wastes, with off-site disposal of all RCRA hazardous or Ecology dangerous or extremely hazardous wastes. Excavate or plug all utility and process lines in Area I.
- After termination of groundwater pumping, cover Area I with a RCRA consistent cap for closure of a land disposal facility. Maintain cap for 30 years, unless period is modified.
- Using the results of the soil sampling and analysis program, eliminate direct contact threats in the non-Western Processing property by excavation of all soils which exceed the ADI level or the  $1 \times 10^{-5}$  excess cancer risk level or a PCB concentration of 2 ppm, and by covering all remaining surface soils with above background concentrations of any contaminant. Maintain the covers for 30 years, unless the period is modified for specific areas. Excavate utility

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lines leaving Area I and going towards Mill Creek, and excavate or plug all other utility lines leaving Area I. Clean utility manholes/vaults near the site. Dispose of excavated material in Area I or in an approved off-site disposal facility. Actions will be limited to those off-property soils which may have been contaminated by Western Processing. The lead contaminated house in Area 8 will be decontaminated.

- Construct and operate for a minimum of 5 to 7 years a shallow groundwater extraction system which will achieve an inward flow from the boundary of the currently contaminated groundwater (except for a 50 foot setback along Mill Creek), and which will permanently achieve Mill Creek performance standards. Construct and operate for a minimum of 5 to 7 years a deeper groundwater extraction system which will, while the extraction system is operating, provide for a reversal of regional groundwater flow along the line of Mill Creek or which will establish a hydraulic barrier to regional groundwater flow along the line of Mill Creek. Construct and operate an extraction system to permanently reduce the concentration of trans 1,2-dichloroethylene in the plume to less than 70 ppb. Construct, operate and maintain or otherwise provide for a groundwater pre-treatment plant. All extracted water leaving the site shall comply with the requirements of Metro if discharged into the sewer system or of Ecology if discharged into waters of the state. Groundwater extracted from off-property areas may be infiltrated onto Area I to assist in the leaching process.

- Construct, operate, and maintain a stormwater control system.

- Excavate contaminated Mill Creek and east drain sediments which may have been affected by Western Processing.

- Intensive monitoring of Mill Creek, the east drain, groundwater and the groundwater extraction system performance. Demonstrate compliance with the Mill Creek and trans 1,2-dichloroethylene performance standards for 30 years from the termination of pumping, unless modified.

- Perform conditionally required actions if the performance standards are not achieved, or if it appears that more than 20 years of groundwater extraction will be necessary. These studies may require tests (bench-scale or pilot scale) of potential remedial techniques.

#### DECLARATIONS

Consistent with the Comprehensive Environmental Response

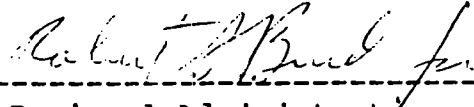
Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 CFR Part 300), I have determined that the above Description of Selected Remedy at the Western Processing site is a cost-effective remedy that provide adequate protection of public health, welfare and the environment. The State of Washington has been consulted and agrees with the selected remedy. Settlements have been reached between the governments (EPA and the State) and the responsible parties based on the selected remedy.

I have also determined that the action being taken is a cost-effective alternative when compared to the other remedial options reviewed. In addition, the off-site transport, storage, destruction, treatment, and secure disposal is more cost-effective than other remedial actions, and is necessary to protect public health, welfare or the environment. All off-site disposal shall be in compliance with the policies stated in Jack W. McGraw, Action Assistant Administrator, Office of Solid Waste and Emergency Response's May 6, 1985 memorandum entitled Procedures for Planning and Implementing Off-site Response Actions,, and any amendments or supplements thereto.

If additional remedial actions are determined to be necessary, a Record of Decision or Enforcement Decision Document will be prepared for approval of the future remedial action.

SEP 4 1986

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Date

  
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Regional Administrator

9/2/86

Summary of Remedial Alternative Selection at the  
Western Processing Company, Inc. site,  
Kent, Washington  
Final Remedial Action

INTRODUCTION

The initial Record of Decision (ROD) for the Second Operable Unit at the Western Processing Superfund Site in Kent, Washington was signed by the Regional Administrator on September 25, 1985. Since then, two major actions have occurred which affect the the original ROD. First, the results from the Summer 1985 groundwater field work were received by EPA in October 1985 and later summarized by CH2M Hill in a Supplemental Remedial Investigation (SRI) report dated July 1986. Second, negotiations with the potentially responsible parties (PRPs) concluded with approximately 180 parties signing the Phase II consent decree. The remedial action will now be undertaken by the consenting defendants rather than the government, and will be a final remedial action. Most of the September 1985 ROD is still relevant and appropriate. The purpose of this amended summary for the second operable unit is to document the changes the new information and new circumstance have had on the selection of the remedy. This amended ROD is essentially an Enforcement Decision Document (EDD) as it is documenting the results of successful negotiations.

In the months since the ROD was signed, a convention has been established when identifying the Western Processing Superfund site and its component areas. The word "property" or "on-property" is used to describe the property owned by Western Processing where business operations occurred, and is synonymous with Area I. (See Figure 1.) (Area VII is also owned by Western Processing, but was used for a residence.) The word "site" is used to describe Area I and the areas designated by Roman numerals in Figure 1 in proximity to Area I (but excluding Area VI.) The boundaries of these numbered areas are considered approximate and may change if soil contamination is detected beyond the current boundaries. The word "off-property" is used to describe the entire site except Area I. Also, the word "governments" means EPA and the Washington Department of Ecology (Ecology).

SITE LOCATION AND DESCRIPTION

This section is unchanged.

SITE HISTORY

This section is unchanged, except that the major events described above have occurred in the past year. The PRPs have

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continued the stormwater collection and treatment on the Western Processing property.

#### CURRENT SITE STATUS

The September 1985 ROD states that 13 additional groundwater monitoring wells were drilled in July and August 1985 to the west of the Western Processing property. These 13 wells plus 10 existing monitoring wells were sampled to determine whether the 1,2 trans-dichloroethylene detected in Well 35 had originated at Western Processing. (See Figure 2.) Prior to this investigation, EPA's consultants considered it unlikely that this contamination had migrated to Well 35 from Area I because Mill Creek appeared to act as a hydraulic barrier to near-surface groundwater flow.

Chemical data from the Supplemental Remedial Investigation (SRI) sampling of these new and previously installed monitoring wells indicate a plume of trans-1,2-dichloroethylene (and lesser amounts of trichloroethene and tetrachloroethene) is emanating from the vicinity of well 21 on the Western Processing property and is migrating northwest both into and beneath the creek. Contaminants have been detected as far west as well 35. The maximum groundwater concentration of trans 1,2-dichloroethylene detected in Well 35 has been 900 ppb. The area around Well 21 has been determined to be the source. The maximum concentration in Well 21 has been 380,000 ppb. The concentration decreases in the downgradient direction. The next highest concentrations have been found east of Mill Creek within the top 40 feet (area of upward vertical migration into the creek). Only traces of contaminants have been detected at depths below 80 feet on the east side of Mill Creek.

There are two major transport mechanisms that could possibly carry contaminants from near the surface in the vicinity of well 21 to the depths necessary for the contaminant to flow beneath Mill Creek: (1) downward vertical groundwater flow or (2) pure contaminant density flow. Because of the extremely steep vertical descent of the contaminant and the general upward groundwater gradient, the most probable mechanism is density flow. Downgradient of the Well 45 cluster, the contaminant plume has apparently migrated in a sand zone that underlies a clay/silt layer at approximately 40 feet. This sand layer can be traced laterally as far as well 42 at depths of approximately 40 to 80 feet, though contaminants have not been detected that far from Area I.

While the SRI study showed that the trans - 1,2 dichloroethylene in well 35 most likely did originate at the Western Processing property, other key aspects of the generalized hydraulic conceptual model were confirmed. The capture depth effect of Mill Creek was confirmed to extend to approximately this same sand layer at approximately 40 feet (upward flow

gradients), followed by a level of predominantly horizontal flow, then, at the below 60 feet level, downward hydraulic flow. Groundwater flow directions are to the northwest.

The other sections of the Current Site Status section are unchanged.

#### ENFORCEMENT

Negotiations with the potentially responsible parties (PRPs) concluded in May 1986 with approximately twenty PRPs signing a stipulation. This stipulation gave EPA sufficient moneys (when combined with previously committed State moneys) to have the Corps of Engineers conclude negotiations for a Corps supervised remedial design contract, while also giving the PRPs additional time to decide whether they wish to sign the consent decree. The remedial design contract was not initiated when, on July 2, 1986, over 120 PRPs submitted their signatures to the governments. By the end of July over 180 PRPs had signed the consent decree. (These 180 consenting defendants are not necessarily the same PRPs that signed the Phase I consent decree.) The governments may sue a number of the non-settling PRPs for all remaining relief.

#### COMMUNITY RELATIONS

Community relations activities have continued since the September 1985 ROD, primarily thru informal briefings and phone updates. The proposed Fund-financed remedy and the dioxin detoxification (a Phase I consent decree issue) were the subjects of Kent City Council briefings. No new major issues have been raised. The lawsuit between a neighboring property owner and a number of PRPs is still underway.

The public comment on this amended ROD and summary will run simultaneously with the Department of Justice comment period on the consent decree. The governments' responses to the issues raised will be submitted to the court, as well as being available to the public.

#### RECOMMENDED ALTERNATIVE

The recommended alternative is the remedy which has been negotiated with consenting defendants. This remedy is described primarily in Appendix B of the Phase II Consent Decree (consent decree.) Appendix B is entitled "Scope of Work for Addressing Soil and Groundwater Contamination at and Emanating from the Western Processing site."

For the most part, the consent decree remedy is either identical to, or substantially the same as, the alternative selected in the original September 1985 ROD. (See Table 1.)

The differences between the remedy in the consent decree and the September 1985 ROD fall into 3 classes:

1. The actions had been foreseen as part of the remedy outlined in the ROD, but were expected to occur after the first 5 to 7 years of remedial action. (The September 1985 ROD selected an interim remedy.) These "Future Actions" included a RCRA compliant cap, long-term O&M, and long-term groundwater and surface water monitoring. The future actions are now part of the selected remedy in the consent decree.

2. The original purpose of the remedy in the September 1985 ROD is still achieved, but the schedule or phasing or approach is different. In some of these situations, the selected remedy in the consent decree is more specific where the ROD was more general. These changes alone would generally not have required the September 1985 ROD to be amended. Examples of these include the on-property soil excavation and the allowable concentrations in Mill Creek; and

3. Further actions were to be planned if they became necessary because of new regional groundwater data. Because the new information confirmed regional groundwater contamination by trans 1,2, dichloroethylene, remedial actions and possible still further future actions have been added to remedy this situation.

Therefore, the following components are proposed for the remedial action. These include most of the elements of the September 1985 ROD.

- Intensive soil and waste sampling on Area I and intensive soil sampling off the property.

- Selective excavation in Area I of highly contaminated soils or non-soil materials ("specific waste") before groundwater pumping begins, with additional excavation during and post-pumping if necessary. Off-site disposal of excavated specific wastes. Exhume all buried containerized wastes, with off-site disposal of all RCRA hazardous or Ecology dangerous or extremely hazardous wastes. Excavate or plug all utility and process lines in Area I.

- After termination of groundwater pumping, cover Area I with a RCRA consistent cap for closure of a land disposal facility. Maintain cap for 30 years, unless period is modified.

- Using the results of the soil sampling and analysis program, eliminate direct contact threats in the non-Western Processing property by excavation of all soils which exceed the ADI level or the  $1 \times 10^{-5}$  excess cancer risk level or a PCB concentration of 2 ppm, and by covering all remaining surface soils with above background concentrations of any contaminant. Maintain the covers for 30 years, unless the period is modified for specific areas. Excavate utility

lines leaving Area I and going towards Mill Creek, and excavate or plug all other utility lines leaving Area I. Clean utility manholes/vaults near the site. Dispose excavated material in Area I or in an approved off-site disposal facility. Actions will be limited to those off-property soils which may have been contaminated by Western Processing. The lead contaminated house in Area 8 will be decontaminated.

- Construct and operate for a minimum of 5 to 7 years a shallow groundwater extraction system which will achieve an inward flow from the boundaries of the area depicted in Figure 3, and which will permanently achieve Mill Creek performance standards. Construct and operate for a minimum of 5 to 7 years a deeper groundwater extraction system which will, while the extraction system is operating, provide for a reversal of regional groundwater flow along the line of Mill Creek or which will establish a hydraulic barrier to regional groundwater flow along the line of Mill Creek. Construct and operate an extraction system to permanently reduce the concentration of trans 1,2 dichloroethylene in the plume to less than 70 ppb. Construct, operate and maintain or otherwise provide for a groundwater pre-treatment plant. All extracted water leaving the site shall comply with the requirements of Metro if discharged into the sewer system or of Ecology if discharged into waters of the state. Groundwater extracted from off-property areas may be infiltrated onto Area I to assist in the leaching process.

- Construct, operate, and maintain a stormwater control system.

- Excavate contaminated Mill Creek and east drain sediments which may have been affected by Western Processing.

- Monitor intensively Mill Creek, the east drain, groundwater and the groundwater extraction system performance. Demonstrate compliance with the Mill Creek and trans 1,2-dichloroethylene performance standards for 30 years from the termination of pumping, unless modified.

- Perform conditionally required actions if the performance standards are not achieved, or if it appears that more than 20 years of groundwater extraction will be necessary. These studies may require tests (bench-scale or pilot scale) of potential remedial techniques.

Where the proposed actions are different from the September 1985 ROD, the proposed actions should be considered additional alternatives to those alternatives previously evaluated in the Feasibility Study and the 1985 ROD.

This remedy is designed to be a final operable unit. However, additional actions may be necessary under certain circumstances. First, if the selected remedy is unsuccessful in meeting the performance standards, new or different technologies, such as in-situ soil stabilization, may be considered and addressed in an additional amended ROD after the consenting defendants request Government approval of such treatments. Second, remedies of deep (regional) groundwater contamination discovered by the monitoring well network (with exception of the trans 1,2 dichloroethylene involving Well 35) is not covered by the remedial actions. However, it is also not included in the releases being given to the consenting defendants. The consent decree specifically states that the consenting defendants and the governments shall enter negotiations if any plume suspected as originating at Western Processing is found west of Mill Creek.

A further discussion of the recommended alternative follows. Where the recommended alternative is identical to or similar to the September 1985 ROD, no discussion is repeated in this document. Where the recommended alternative is different than the alternative in the September 1985 ROD, an explanation is given. The change may be justified by significant new information, consideration of cost-effectiveness; adequate protection of public health, welfare, and the environment; or compliance with other applicable or relevant environmental standards.

#### On-property (Area I) Soils

The recommended alternative for Area I soils is identical to the alternative in the September 1985 ROD except for: 1) specific waste excavation criteria and timing; 2) containerized waste disposal; and 3) RCRA compliant cap and maintenance.

The September 1985 ROD stated that the results of a testing and sampling program would define the selective excavation of highly contaminated (non-containerized) soil and non-soil material. The purpose of the excavation was to reduce the source strength, but no criteria was specified. The cost-estimate was based on excavating and disposing off-site 10,650 cubic yards, but the ROD went on to say that the quantity (and thus the cost) could not be accurately determined until the sampling is completed.

The proposed remedy continues to base the selection of the material to be excavated on the results of an Area I soil and waste sampling and analysis program. The primary difference is that the consent decree specifies the criteria which should be used to select the most troublesome source material. The criteria include 1) the contaminants may not be cost-effectively removed by in-situ leaching and which could, by their presence,

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prevent compliance with the Mill Creek water quality performance standards; or 2) the contaminants may, because of their location or physical or chemical properties, migrate beyond the hydrogeologic boundary of Mill Creek; or 3) the material may adversely affect the stability of a cap over Area I. The secondary difference is that the consenting defendants are required to remove 10,000 cubic yards prior to pumping. The Governments may require additional excavation at any time if compliance with Mill Creek standards or the stability of the cap is at risk.

The September 1985 ROD assumes that all exhumed drums and other containerized materials would be disposed off-site in an approved facility. The proposed remedy will require off-site disposal of all RCRA hazardous wastes and Ecology dangerous or extremely hazardous wastes. However, if the exhumed containerized material is not hazardous, the material may be replaced into Area I under the clean cover and eventual RCRA cap.

All of the above changes are consistent with the original purpose of the Area I excavation. However, these changes will make the remedy more cost-effective while maintaining the same public health and environmental protections as the original remedy.

The third change is the addition of a cap consistent with the criteria in the RCRA regulations for closure of a land disposal facility (landfill) in effect at the time of entry of the consent decree. The September 1985 ROD envisioned site close-out to include such a cap. Also, compliance with other environmental laws and standards require that such a cap be placed over Area I as some hazardous wastes will be left on site. The 1985 Feasibility Study estimated that the cost of the cap would be approximately \$2,900,000. The cap maintenance provisions are also consistent with RCRA.

#### Off-Property Soils and Issues

The recommended alternative for the off-property soils is identical to the alternative in the September 1985 ROD except the period of maintenance for the cover is specified. Both alternatives require that soils contaminated with above background concentrations of contaminants which may have come from Western Processing activities be covered. This cover may be soil or asphalt but must have a permeability less than or equal to the permeability of the subsoil. The September 1985 ROD acknowledges that the cover will have to be maintained for a minimum of 30 years, but the selected remedy covered by that ROD covered only the first 5 years. The consent decree requires the consenting defendants provide for the maintenance of the cover for a period of 30 years. This requirement may be modified for specific off-property areas if, for example, the property owner develops or paves a parcel for his own benefit or use.

The other proposed off-property actions for direct contact hazards (cleaning the lead contaminated house in Area 8 and inspection and cleaning utility vaults) are also unchanged from the September 1985 ROD.

#### Selection of Disposal Facility

The proposed alternative is virtually identical with the September 1985 ROD. Both alternatives involve both Area I and off-site disposal. Government approval for the use of any particular off-site facility will still be based on the requirements specified in the May 6, 1985 memorandum entitled "Procedures for Planning and Implementing Off-Site Response Actions" from Jack W. McGraw, EPA Acting Assistant Administrator for Solid Waste and Emergency Response, or any amendments or supplements. If, however, government approved facilities in Region 10 are unavailable, a variety of steps must be taken by the consenting defendants, including consideration of temporary storage and consideration of government approved disposal facilities in Regions 8 and 9. If all these options are out of the question, the consenting defendants and the government will negotiate to develop an acceptable alternative. The alternatives to be considered would include treatment and destruction. If the selected remedial action is anything other than disposal at a government approved hazardous waste facility, a public comment period and an amended ROD may be necessary.

#### Shallow Groundwater

The shallow groundwater proposed actions in the consent decree are largely similar to the selected actions in the September 1985 ROD. To ensure that there will be no degradation of the shallow groundwater beyond the currently contaminated zone, the consenting defendants will be required, throughout the pumping period, to achieve a shallow groundwater flow inward from the boundaries of the contaminated zone. (See Figure 3.) Compliance with this performance standard will be monitored by checking the water levels in new and existing monitoring wells. An exception has been added for a 50 foot set-back from Mill Creek to avoid drying up the creek. This change is more cost-effective and protective of the environment.

Mill Creek performance standards (see below) must also be met during and after pumping. A demonstration that the Mill Creek performance standards will be met on a permanent basis after ceasing pumping is the key criteria for determining when the shallow groundwater pumping may terminate. This criteria for determining when groundwater extraction may cease is consistent with the September 1985 ROD. The September 1985 ROD included a period of five years of pumping, to be followed by a major reassessment of this activity. The consent decree's minimum

pumping period of 5 to 7 years will provide a large degree of improvement in the shallow groundwater quality , particularly in the more mobile organics.

The selected remedy in the September 1985 ROD allowed low capital cost in-situ chemical leaching techniques to be used after monitoring the site to ensure that adequate gradient control had been established and after sufficient laboratory scale testing. These techniques may also be applied by the consenting defendants under the consent decree after they specifically ask for and receive the governments' permission. The consenting defendants may also ask for permission to apply other techniques which may become more feasible in the future, such as in situ solidification, but a more detailed review, including public comment and an amended ROD, would be necessary prior to the governments' approval.

### Regional Groundwater

The September 1985 ROD stated that additional remedial activities may be required to complete the site response if contamination from Western Processing is found in the regional aquifer. The proposed alternative addresses regional groundwater contamination in 4 ways: 1) clean-up of the only known plume; 2) reverse regional groundwater flow along approximately 1800 feet of Mill Creek, or establish an hydraulic barrier to regional groundwater flow along the same line; 3) extensive regional groundwater monitoring; and 4) groundwater use restrictions.

The consent decree requires that the concentration of trans 1,2-dichloroethylene be reduced to below 70 ppb throughout the plume prior to termination of the groundwater extraction system for this portion of the clean-up. The proposed Recommended Maximum Concentration Limit in drinking water (50 FR 4688, November 13, 1985) for trans 1,2-dichloroethylene is 70 ppb. While no one is currently using or drinking this groundwater, this proposed drinking water criteria is the relevant environment standard. This level of clean-up is to be achieved by source removal from Area I during the specific waste removal and by installing wells specifically placed and designed to extract the trans 1,2-dichloroethylene already beyond the boundary of Area I.

The requirement to reverse groundwater flow at a depth of 40 to 70 feet at approximately Mill Creek, or to establish an hydraulic barrier to the regional groundwater flow at approximately the same location, will insure that no new regional groundwater plumes will escape from Area I and pass under Mill Creek. In addition, the extraction wells in the regional groundwater may provide for earlier and easier detection of any plume which has bypassed the creek and the existing monitoring net. These steps are necessary to protect the groundwater for future use. They are also cost-effective as it is less expensive

to clean-up a smaller area of groundwater contamination than to clean-up a large plume. The groundwater flow reversal would probably be achieved by placing extraction wells screened at the 50 to 70 foot depth within Areas I and IX. The hydraulic barrier would be achieved by placing extraction wells very near the creek, including the west side of the creek.

The consent decree also does not give the consenting defendants any release of liability for regional groundwater contamination except for their clean-up of the only known plume. If further regional groundwater contamination is ever detected, all PRPs may be held liable and required to remedy the situation and/or repay the governments' costs.

#### Discharge of Extracted Groundwater

The cost estimates in the September 1985 ROD assumes that all extracted groundwater would be pre-treated and discharged to the Metro sewer and treatment system. This is still the most likely disposal option for all groundwater extracted from Area I or any other highly contaminated area. The proposed alternative expands the disposal options for the uncontaminated or only slightly contaminated groundwater which may be extracted as part of the regional or even shallow off-property groundwater extraction system. These additional options are discharge into a surface water body in compliance with the requirements of Ecology pursuant to the NPDES system, or infiltration into Area I to assist the leaching process. These alternatives were raised when it was realized that the quantity of water that may be produced from the newly required regional groundwater actions may exceed the capacity of the local sewer system. These changes are consistent with applicable and relevant environmental standards and criteria. For uncontaminated or slightly contaminated water, these alternatives may be more cost-effective than discharge to Metro. Infiltration of stormwater into Area I prior to cap placement to aid the leaching program was the recommended stormwater alternative in the September 1985 ROD. Infiltration of groundwater prior to cap placement to also aid the leaching program is an extension of the same idea.

#### Mill Creek

The objectives for remedial action in Mill Creek are still the objectives in the September 1985 ROD. The objectives will still be met by groundwater control, shallow groundwater quality improvement (from specific waste excavation, leaching, and groundwater extraction), and sediment excavation.

As a result of negotiations, numerical performance standards for water quality in Mill Creek were developed. (Table 2.) These numerical performance standards are consistent with the approach described in the September 1985 ROD. The calculation of the

maximum allowable downstream concentration for each pollutant considers both the ambient water quality criteria for aquatic organisms and the upstream (background) concentration. As Ecology's long-term goals of improving upstream water quality are achieved, the consenting defendants will be required to meet more rigorous Mill Creek performance standards.

As in the September 1985 ROD, the shallow groundwater concentrations which will allow these Mill Creek performance standards to be permanently achieved will require over 99% of the available (mobile) zinc and and a high percentage of the available (mobile) cadmium to be removed from the site.

The recommended alternative still includes the Mill Creek and east drain sediment testing and excavation program. The minimum reach which will be tested has been slightly shortened at the downstream end, but will still include 300 feet downstream of the east drain discharge into Mill Creek.

#### Stormwater controls

The recommended stormwater remedial actions are unchanged.

#### Monitoring

The recommended monitoring program is unchanged. The consenting defendants are required to continue the extensive monitoring program for at least 30 years from the cessation of pumping to demonstrate full compliance with the consent decree.

#### Land and Groundwater Use Restrictions

The consent decree requires the consenting defendants to use their best efforts to place groundwater, and, in the case of Area I, land use restrictions in the county property records. The September 1985 ROD foresaw the need for such restrictions. The land use restriction on Area I follows the wording in the RCRA regulations at 40 CFR 264.120 and 264.117(c) and states that post-remedial action land use is restricted such that use of the property must never be allowed to disturb the integrity of the final cover, or any other component of any containment system, or the function of the monitoring system.

The groundwater use restrictions will also be placed in the county property records. The groundwater restrictions will ensure that there will be no threats to public health from any contaminated groundwater.

### Community Relations

Proposed community relations activities are unchanged from the September 1986 ROD. The governments will maintain the lead for the community relations activities, but the consent decree outlines activities where the consenting defendants and their contractors will cooperate with the governments' activities.

### Other Issues

Floodplain protection is unchanged from the September 1985 ROD.

### Costs

No cost breakdowns are available. The consenting defendants have estimated that the cost of the remedy is approximately \$40,000,000. This cost estimate is consistent with the cost estimates in the September 1986 ROD.

### CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

The list of federal and state applicable and relevant environmental standards, criteria, guidance, and advisories are unchanged from the September 1985 ROD.

The recommended alternative is currently considered a final remedy. However, as summarized under Future Actions, items which are currently unknown may require future evaluation and actions.

Aspects of the recommended alternative which are consistent with the applicable and relevant portions of RCRA regulations include:

- A cap over Area I designed to be consistent with RCRA regulations for closure of a land disposal facility, and maintenance of this cap.
- The off-site soil cover design and maintenance
- Groundwater monitoring
- Land and groundwater use restrictions in Area I and other areas

The recommended alternative is still consistent with the Assistant Administrator's application of RCRA to the Crystal Chemical CERCLA site. The federal Water Quality Criteria for aquatic organisms are still used to set Mill Creek performance standards, but a factor has been added to reflect the variable quality of the upstream (background) water quality. The performance standard for the trans 1,2-dichloroethylene is

consistent with the RMCL proposed under the Safe Drinking Water Act. All other elements are consistent with the statements in the September 1985 ROD.

Ecology has been an active participant in the negotiations and supports the remedy described in the consent decree and this amended ROD summary.

#### OPERATION AND MAINTENANCE (O&M)

The O&M activities required to ensure effectiveness of the remedy include:

Operation of the groundwater extraction and treatment systems as long as necessary

Maintenance of the RCRA cap, off property covers, and the stormwater control system for 30 years

Long-term monitoring of the shallow and deep groundwater and Mill Creek, including 30 years of monitoring after termination of groundwater extraction

All O&M activities will be the responsibility of the consenting dependents.

#### SCHEDULE

- |   |                            |
|---|----------------------------|
| - Soil and waste sampling program stipulation filed                       | August 15, 1986            |
| - Soil and waste sampling   | September to November 1986 |
| - Consent decree lodged   | September 1986             |
| - Detailed work plans received from the consenting defendant's contractor | February 1987              |
| - Start construction  | Spring-Summer 1987         |
| - Start groundwater extraction  | 1988                       |

#### FUTURE ACTIONS

No future actions are presently expected. However as discussed above, mechanisms are in place for initiating new or revised actions if they are necessary. Areas where additional actions may be necessary include:

- Regional groundwater if another plume is detected.

- New technologies for soil stabilization or treatment that may arise as a result of conditionally required actions, application of the McGraw policy, or at the request of the consenting dependents.

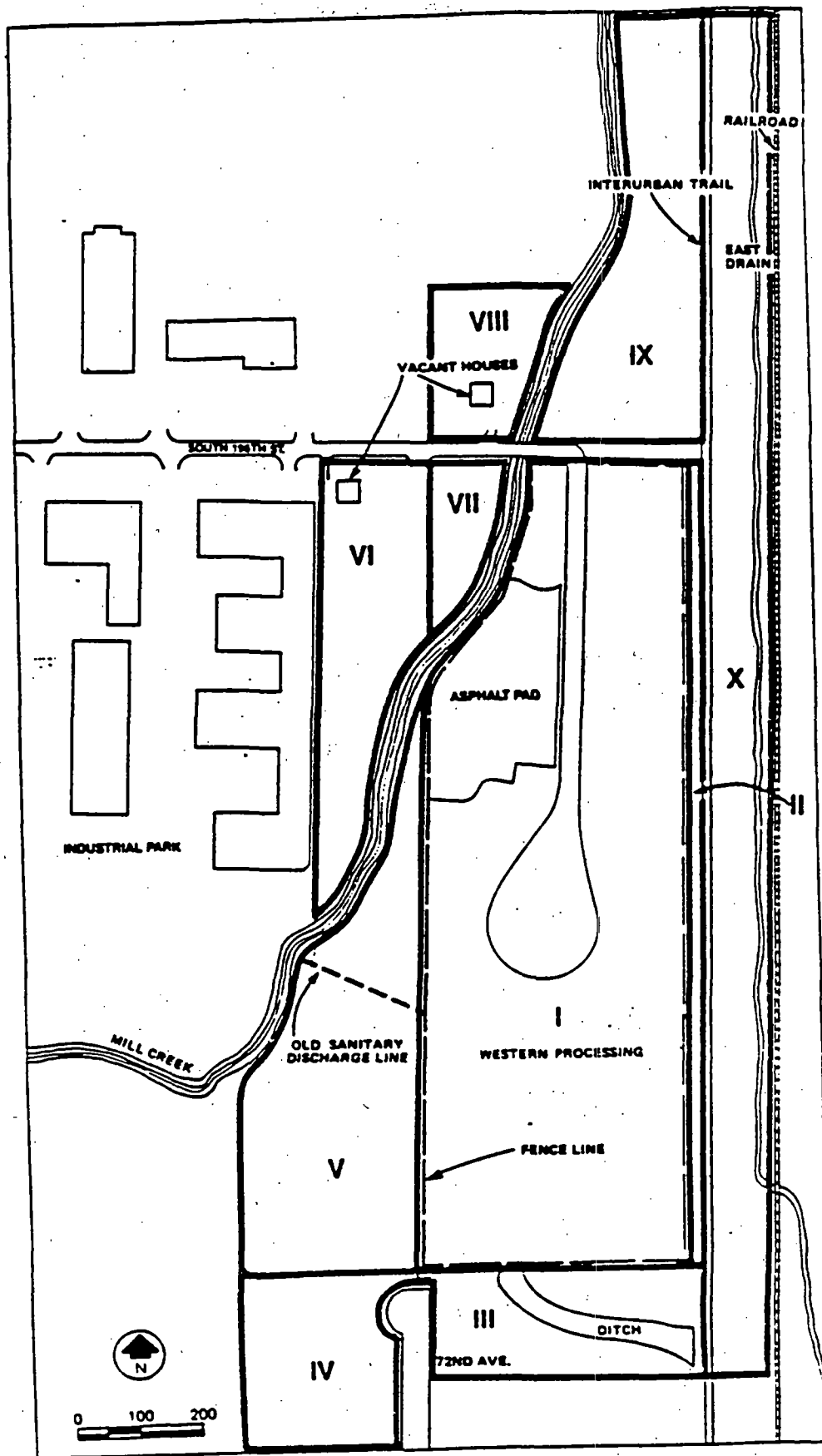
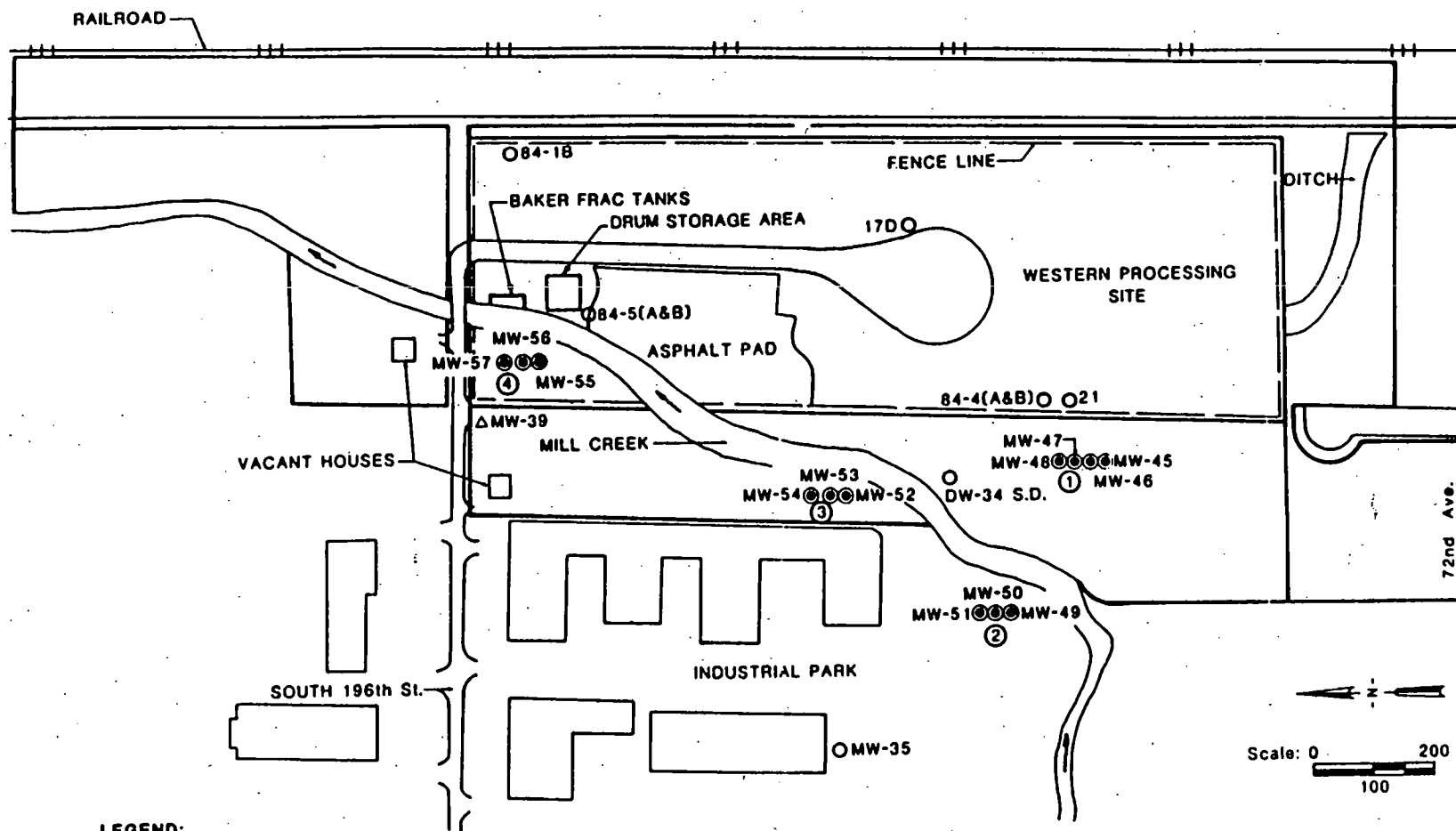


FIGURE 1



## LEGEND:

① Site No.

● Wells Installed and Sampled During Summer 1985

○ Existing Wells Sampled During August 1985

△ Existing Well Abandoned

⊗ MW-43

Figure 2

Scale: 0 200  
100

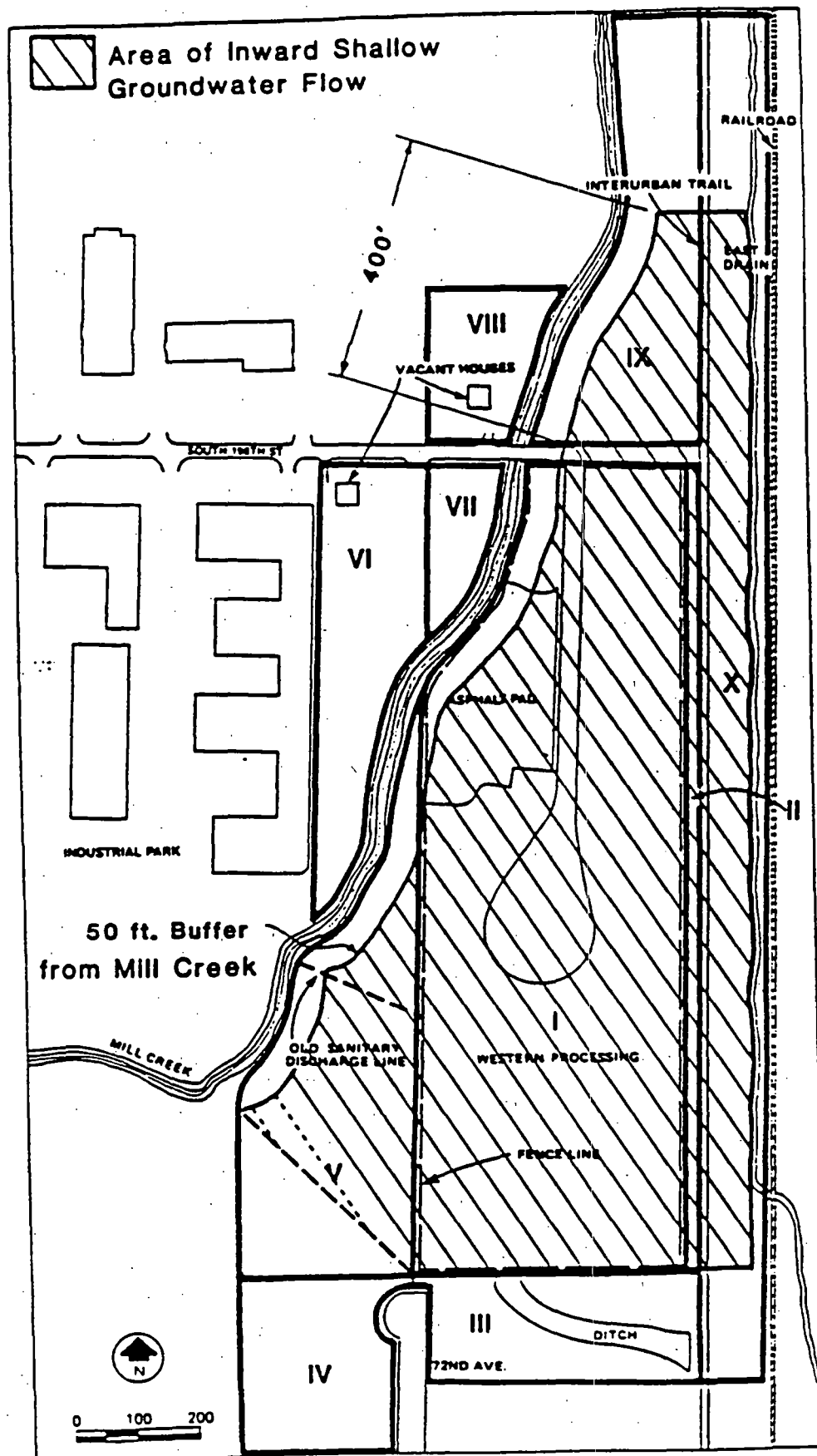


FIGURE 3

TABLE 1

MAIN ELEMENTS OF THE CONSENT DECREE SELECTED REMEDY

	Similar to September 1985 ROD	Different from September 1985 ROD
<u>General Requirements</u>		
Health and Safety Plan		Always required
Quality control/quality assurance plan for samples and analysis		Always required
Selection of Off-site disposal facility	X	
Floodplain protection	X	
Area I stormwater system	X	
<u>Area I Soils</u>		
Non-destructive subsurface geophysical survey	X	
Soil/waste sampling and analysis program	X	
Excavate containerized wastes		X (2)*
Excavate specific wastes		X (2)
Excavate and dispose off-site all PCB's over 50 ppm	X	
Plug or excavate utilities	X	
Control stormwater runoff	X	
Clean fill for a work surface	X	
RCRA cap and maintenance		X (1)
<u>Off-Property Soils and Issues</u>		
Soil sampling and analysis program	X	
Non-destructive geophysical survey	X	
Excavate hots spots over ADI or over 10-5 excess cancer risk or PCB's over 2 ppm if contamination may have been from Western Processing	X	
Cover soils with concentrations over background if contamination may have been from Western Processing	X	

Non-extremely hazardous waste may be brought onto Area I and placed under the cap	X	
Maintain cover		X (1)
Clean the house in Area VIII	X	
Test and clean live utilities	X	

### Groundwater and Mill Creek

#### Specific Actions

Shallow groundwater extraction from the contaminated on and off-property areas		X (2)
Regional groundwater extraction wells for trans-1,2 dichloro- ethylene extraction, and to reverse the flow or to esta- blish a hydraulic barrier		X (3)
Discharge groundwater to:		
Metro	X	
Surface water		X (2)
Area I infiltration		X (2)
Minimum 5-7 years of pumping		X (2)
In-situ enhanced leaching	X	
Monitoring programs	X	
30 year post-pumping compliance period		X (1)
Groundwater use restrictions		X (1)
Excavate and restore Mill Creek and the east drain		X (2)

#### Performance Criteria to Cease Pumping

Achieve Mill Creek performance standards for aquatic organisms		X (2)
Reduce trans 1,2-dichloroethylene to 70 ppb throughout the plume		X (3)

### Other Issues

On-going Community Relations Activities	X	
Deed/title restrictions		X (1)

\* (1) The actions had been foreseen as part of the remedy in the September 1985 ROD, but were planned to occur after the first 5 to 7 years of remedial action which were covered by that ROD.

(2) The concepts and final criteria or protection are similar to the selected remedy in the September 1985 ROD, but the approach or phasing is different.

(3) Because regional groundwater contamination by trans 1,2 dichloroethelene from Western Processing has been confirmed, new elements are being added to the selected remedy.

TABLE 2

MILL CREEK PERFORMANCE STANDARDS

Consent Decree, Appendix B

Section IV. D. 4. Allowable Concentrations in Mill Creek

a. If the concentration of a Mill Creek indicator chemical or other priority pollutant at the upstream (background) monitoring point in Mill Creek is less than two-thirds of the applicable upstream Federal Ambient Water Quality Criterion for Aquatic Organisms (Water Quality Criterion), the maximum allowable concentration at the downstream compliance point shall be the downstream Water Quality Criterion.

b. If a Water Quality Criterion is not achievable because the upstream (background) concentration of a chemical is near or above the Water Quality Criterion, the maximum allowable concentration at the downstream compliance point shall be the level described below:

(i) If the concentration of a Mill Creek indicator chemical or other priority pollutant at the upstream (background) monitoring point in Mill Creek is at or above two-thirds of the upstream Water Quality Criterion, the maximum allowable concentration at the downstream compliance point shall be no more than the background concentration plus fifty percent of the background concentration; or

(ii) If the concentration of a Mill Creek indicator chemical or other priority pollutant at the upstream (background) monitoring point in Mill Creek is at or above the upstream Water Quality Criterion, the maximum allowable concentration at the downstream compliance point shall be no greater than background plus eighty percent of the upstream Water Quality Criterion.

The applicable Water Quality Criteria shall be those final criteria published in the Federal Register as of the date of entry of this Consent Decree.